

Notice of Allowability**Application No.**

10/821,531

Examiner

RuiMeng Hu

Applicant(s)

ALI ET AL.

Art Unit

2618

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 01/08/2010.
2. ☒ The allowed claim(s) is/are 1-27.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date ____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chad Miller on 02/26/2010.

The application has been amended as follows:

Claim 1. A method for rapidly generating a signal at an output frequency for use in a communication device comprising: providing a reference signal at a reference frequency to a first signal synthesizer configured to generate a first signal at a first frequency; generating the first signal with the first signal synthesizer; processing the first signal to reduce harmonic cross-coupling thereby creating a processed first signal; providing the reference signal at the reference frequency to a second signal synthesizer configured to generate a second signal at a second frequency; generating the second signal with the second signal synthesizer; processing the second signal to reduce harmonic cross-coupling thereby creating a processed second signal; providing the processed first signal and the processed second signal to a switch; responsive to a control signal; selectively switching the switch to output from the switch either the processed first signal or the processed second signal to create a switch output signal; after switching either the processed first signal or the processed second signal from the

switch and for every switching by the switch, **[shifting] changing the setting of a frequency modification module to shift** the frequency of the switch output signal to thereby generate a frequency specific signal at a different frequency; and outputting the frequency specific signal on a single output without the frequency specific signal passing through any switches after the shifting of the frequency, wherein selectively switching the switch to output from the switch either the processed first signal or the processed second signal is the only switching when producing the frequency specific signal.

Claim 8. A method for generating an output signal at one or more output frequencies comprising: generating a first signal at a first frequency; generating a second signal at a second frequency; limit processing at least one of the first signal and the second signal to reduce cross- coupling to generate one or more limit processed output signals; providing the one or more limit processed output signals to a switch; selectively outputting, based on switch operation, at least one limit processed output signal received from the switch to a frequency modification module; for each and every switch operation changing **[the modification of the frequency of the signal output from the switch with] the setting of** the frequency modification module to **[create a frequency modified signal] shift the frequency of the switch output signal to thereby generate a frequency modified signal**; and outputting the frequency modified signal on a single output and wherein the switch is the only switch in producing the frequency modified signal.

Claim 14. A system for generating an output signal, wherein the output signal is capable of being switched between two or more output frequencies, the system comprising: two or more signal generators configured to generate two or more signals, wherein each signal is at a different frequency; one or more multiplier, dividers, or both configured to receive at least one of the two or more signals and process the at least one signal to create a first signal at a first frequency or a second signal at a second frequency such that the second frequency is a non-integer multiple of the first signal; a switch configured to receive at least two signals of the two or more signals and responsive to a control signal output a switch output comprising one of the two or more signals; and a frequency modification device configured to receive the switch output after switching and modify the frequency of the switch output **signal [to a desired output frequency]** to create **[an output] a frequency modified** signal, wherein for every change in the switch output **[a frequency modification change also occurs]** **the setting of the frequency modification device also changes to shift the frequency of the switch output signal to thereby generate the frequency modified signal**, wherein an additional switch is not present after the frequency modification device and the system utilizes only one switch.

Claim 22. A system for rapidly switching the frequency of an output signal between a third frequency and a fourth frequency comprising: a switch configured to receive a first signal at a first frequency and a second signal at a second frequency and responsive to a control signal output either of the first signal or the second signal; a frequency modification device configured to, responsive to a control signal, increase or

decrease the frequency of a signal output from the switch to either the third frequency or the fourth frequency wherein for every change in switch output, **[an increase or decrease in the frequency of a signal output from the switch occurs to create a frequency modified signal] the setting of the frequency modification device changes to increase or decrease the frequency of the switch output signal to thereby generate a frequency modified signal**; and a controller configured to provide a control signal to the switch and the frequency modification device to thereby synchronize which signal is output from the switch with frequency modification device operation; an output configured to output the frequency modified signal, and wherein the switch is the only switch in the system.

Allowable Subject Matter

2. **Claims 1-27** are allowed.
3. The following is an examiner's statement of reasons for allowance:

Consider **independent claims 1, 8, 14 and 22**, the best prior art of record found during the examination of the present application, **Takenouchi et al. (JP 06-338793)** disclose a method for rapidly generating a signal at an output frequency for use in a communication device comprising (paragraph 1): providing a reference signal (drawing 1, reference signal oscillator 31) at a reference frequency to a first signal synthesizer (drawing 1, PLL 52) configured to generate a first signal at a first frequency; generating the first signal (drawing 1, output of VCO 38) with the first signal synthesizer; providing the reference signal at the reference frequency to a second signal synthesizer (drawing

1, PLL 53) configured to generate a second signal at a second frequency; generating the second signal (drawing 1, output of VCO 39) with the second signal synthesizer; providing the processed first signal and the processed second signal to a switch (drawing 1, switch 42); responsive to a control signal, selectively switching a switch to output from the switch either the processed first signal or the processed second signal to create a switch output signal; outputting the switch output signal on a single output (paragraph 22).

Hjipieris et al. (US Patent 5237291) disclose filters for removing unwanted harmonics from a generated oscillating signal wherein processing the first signal to reduce harmonic cross-coupling thereby creating a processed first signal; and processing the second signal to reduce harmonic cross-coupling thereby creating a processed second signal (figure 1, filters 17, 15 and 13, column 2 lines 27-40); shifting (41 or 43) the frequency of the switch 38 output signal to thereby generate a frequency specific signal at a different frequency (output of 46); outputting the frequency specific signal on a single output (output of 46).

Kapetanac et al. (US Patent 6163223) disclose after switching either the processed first signal or the processed second signal from the switch and for every switching by the switch, shifting the frequency of the switch output signal to thereby generate a frequency specific signal at a different frequency; outputting the frequency specific signal on a single output (when switch 10 switches, frequency modifiers 80 and 96 re-adjust themselves to achieve a new specific frequency, column 6 line 65-column 7

line 53, column 8 lines 15-43; figure 1, switch 10, frequency changer 96, column 6 line 65-column 7 line 18).

Shimoda (US Pub. 2002/0055344) discloses a local oscillation signal generation circuit in figure 9, comprising a single switch 7 to selectively output an oscillation signal, a frequency multiplier 9 modifies the oscillation signal for every switching operation of switch 7.

However, **Takenouchi et al. (JP 06-338793)**, **Kapetanac et al. (US Patent 6163223)**, **Hjipieris et al. (US Patent 5237291)** and **Shimoda (US Pub. 2002/0055344)** fail to specifically disclose, teach, or suggest the combination of a) only one switch is used, and b) for every switching by the switch changing the setting of the frequency modification module to shift the frequency of the switch output signal to thereby generate a frequency specific signal. Therefore, claims 1-27 of the present application are considered novel and non obvious over the prior art and, consequently, are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RuiMeng Hu whose telephone number is 571-270-1105. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/RuiMeng Hu/
R.H./rh
February 26, 2010

/Edward Urban/

Supervisory Patent Examiner, Art Unit 2618